COEN DE VENTE, MSC

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 github.com/coendevente 📅 Born: 04-08-1996 in Zaanstad, the Netherlands

Enthusiastic about machine learning, computer vision and improving people's lives.

EXPERIENCE

PhD in Deep Learning for Medical Imaging

DIAG @ Radboud University Medical Center & QurAI @ University of Amsterdam

📅 Sep 2019 – present   📍 Nijmegen & Amsterdam

- Developing deep learning models for **ophthalmology** & **radiology**.
- Researching **uncertainty**, **diffusion models**, and **domain adaptation** for generalization in optical coherence tomography.
- ≥ 15 **publications** in international journals, conferences, and preprint servers.
- Other tasks: maintaining our deep learning cluster dashboard, managing publication lists on the group website, teaching "AI for Medical Imaging" course.

Web developer

Freelance - for small enterprises and institutions

📅 2011 – present

- Used technologies such as PHP, SQL, Python, and Django.
- Developed websites and CMSes from scratch, but also used WordPress and WebFlow.

Internship · *grade: 9.0/10*

Philips Research

📅 Oct 2018 – Aug 2019   📍 Eindhoven

- Published a journal paper in **IEEE TBME** (first author, > 100 citations) and an extended abstract for **MIDL**.
- Explored deep learning approaches for prostate cancer detection and grading from multi-parametric MRI.

Internship · *grade: 9.5/10*

King's College London, St. Thomas Hospital

📅 Apr 2018 – Aug 2018   📍 London

- Used convolutional neural networks for left atrium and fibrosis segmentation in CardiacMR.
- Left atrium segmentation algorithm was **published as part of the MICCAI challenge STACOM 2018**.

EDUCATION

MSc Biomedical Engineering · *cum laude*

Medical Image Analysis (IMAG/e) @ Eindhoven University of Technology / Utrecht University

📅 Sep 2017 – Aug 2019   📍 Eindhoven

- Average grade: 8.3/10.
- Focused on machine learning applied to medical imaging.
- Followed Computer Science and Electrical Engineering courses such as *Data structures* and *Adaptive information processing*.

BSc Biomedical Engineering

Eindhoven University of Technology

📅 Sep 2014 – Jul 2017   📍 Eindhoven

- Distinction: *with great appreciation*, honors program (30 ECTS), propedeuse: *cum laude*.
- Followed Computer Science and Physics courses such as *Algorithms* and *Biological physics*.

EXTRACURRICULAR ACTIVITIES

Competitive Programming and Problem Solving
Honors Academy of TU/e
📅 Sep 2016 – July 2017 📍 Eindhoven

- Participated in programming contests on algorithmic and engineering problems **(Google Hash Code, Facebook Hacker Cup, BAPC, EAPC)**.
- Organization Google Hash Code Hub TU/e.

Chair Communications SensUs Student Competition
Honors Academy of TU/e
📅 Jun 2015 – Sep 2016 📍 Eindhoven

- Co-founded competition that has been running and growing substantially ever since.

Intro Committee
Study Association SvBMT Protagoras
📅 Nov 2014 – Sep 2015 📍 Eindhoven

- Organized the introduction program for the new first year's students.

TECHNICAL STRENGTHS

PyTorch Keras MONAI Python MATLAB LaTeX
C++ Java JavaScript PHP Git Docker
Azure Machine learning Deep learning
ChatGPT DALL·E Stable Diffusion Midjourney
Adobe Illustrator Adobe Photoshop MacOS Linux
Windows

NATURAL LANGUAGES

English (fluent) Dutch (native) German (basic)

HOBBIES AND INTERESTS

Running Piano Snowboarding Chess Cooking

PUBLICATIONS

[1] de Vente, C., C. González-Gonzalo, E. F. Thee, M. van Grinsven, C. C. Klaver, and C. I. Sánchez, "Making AI transferable across OCT scanners from different vendors," in *Association for Research in Vision and Ophthalmology*, 2021. [Online]. Available: https://iovs.arvojournals.org/article.aspx?articleid=2775505.

[2] de Vente, C., L. H. Boulogne, K. Vaidhya Venkadesh, C. Sital, N. Lessmann, C. Jacobs, C. I. Sánchez, and B. van Ginneken, "Automated COVID-19 grading with convolutional neural networks in computed tomography scans: A systematic comparison," *IEEE Transactions on Artificial Intelligence*, vol. 3, no. 2, pp. 129–138, 2022. DOI: 10.1109/TAI.2021.3115093.

[3] de Vente, C., M. van Grinsven, S. De Zanet, A. Mosinska, R. Sznitman, C. Klaver, and C. I. Sánchez, "Estimating uncertainty of deep neural networks for age-related macular degeneration grading using optical coherence tomography," in *Association for Research in Vision and Ophthalmology*, Jun. 2020. [Online]. Available: https://iovs.arvojournals.org/article.aspx?articleid=2769262.

[4] Lessmann, N., C. I. Sánchez, L. Beenen, L. H. Boulogne, M. Brink, E. Calli, J.-P. Charbonnier, T. Dofferhoff, W. M. van Everdingen, P. K. Gerke, B. Geurts, H. A. Gietema, M. Groeneveld, L. van Harten, N. Hendrix, W. Hendrix, H. J. Huisman, I. Isgum, C. Jacobs, R. Kluge, M. Kok, J. Krdzalic, B. Lassen-Schmidt, K. van Leeuwen, J. Meakin, M. Overkamp, T. van Rees Vellinga, E. M. van Rikxoort, R. Samperna, C. Schaefer-Prokop, S. Schalekamp, E. T. Scholten, C. Sital, L. Stöger, J. Teuwen, K. Vaidhya Venkadesh, C. de Vente, M. Vermaat, W. Xie, B. de Wilde, M. Prokop, and B. van Ginneken, "Automated assessment of COVID-19 reporting and data system and chest CT severity scores in patients suspected of having COVID-19 using artificial intelligence," *Radiology*, vol. 298, no. 1, E18–E28, 2021. DOI: 10.1148/radiol.2020202439.

[5] González-Gonzalo, C., E. F. Thee, B. Liefers, C. de Vente, C. C. Klaver, and C. I. Sánchez, "Hierarchical curriculum learning for robust automated detection of low-prevalence retinal disease features: Application to reticular pseudodrusen," in *Association for Research in Vision and Ophthalmology*, 2021. [Online]. Available: https://iovs.arvojournals.org/article.aspx?articleid=2773295.

[6] Ardu, A., B. Liefers, C. de Vente, C. González-Gonzalo, C. Klaver, and C. I. Sánchez, "Artificial intelligence for the classification and quantification of reticular pseudodrusen in multimodal retinal images," in *European Society of Retina Specialists*, Sep. 2020.

[7] de Vente, C., P. Vos, M. Hosseinzadeh, J. Pluim, and M. Veta, "Deep learning regression for prostate cancer detection and grading in bi-parametric mri," *IEEE Transactions on Biomedical Engineering*, vol. 68, no. 2, pp. 374–383, 2020. DOI: 10.1109/TBME.2020.2993528.

[8] Xiong, Z., Q. Xia, Z. Hu, N. Huang, C. Bian, Y. Zheng, S. Vesal, N. Ravikumar, A. Maier, X. Yang, P.-A. Heng, D. Ni, C. Li, Q. Tong, W. Si, E. Puybareau, Y. Khoudli, T. Graud, C. Chen, W. Bai, D. Rueckert, L. Xu, X. Zhuang, X. Luo, S. Jia, M. Sermesant, Y. Liu, K. Wang, D. Borra, A. Masci, C. Corsi, C. de Vente, M. Veta, R. Karim, C. Jayachandran Preetha, S. Engelhardt, M. Qiao, Y. Wang, Q. Tao, M. Nuñez-Garcia, O. Camara, N. Savioli, P. Lamata, and J. Zhao, "A global

benchmark of algorithms for segmenting the left atrium from late gadolinium-enhanced cardiac magnetic resonance imaging," *Medical Image Analysis*, vol. 67, p. 101 832, 2021.

[9] de Vente, C., M. Veta, O. Razeghi, S. Niederer, J. Pluim, K. Rhode, and R. Karim, "Convolutional neural networks for segmentation of the left atrium from gadolinium-enhancement mri images," in *International Workshop on Statistical Atlases and Computational Models of the Heart*, Springer, 2018, pp. 348–356.

[10] Schwartz, R., H. Khalid, S. Liakopoulos, Y. Ouyang, C. de Vente, C. González-Gonzalo, A. Y. Lee, R. Guymer, E. Y. Chew, C. Egan, *et al.*, "A deep learning framework for the detection and quantification of reticular pseudodrusen and drusen on optical coherence tomography," *Translational Vision Science & Technology*, vol. 11, no. 12, pp. 3–3, 2022. DOI: 10.1167/tvst.11.12.3.

[11] Lemij, H. G., C. de Vente, C. I. Sánchez, J. Cuadros, N. Jaccard, and K. Vermeer, "Glaucomatous features in fundus photographs of eyes with 'referable glaucoma' of a large population based labeled data set for training an artificial intelligence (AI) algorithm for glaucoma screening," in *Association for Research in Vision and Ophthalmology*, vol. 63, The Association for Research in Vision and Ophthalmology, 2022, 2041–A0482. [Online]. Available: https://iovs.arvojournals.org/article.aspx?articleid=2782322.

[12] Schwartz, R., H. Khalid, S. Liakopoulos, Y. Ouyang, C. de Vente, C. G. Gonzalo, A. Y. Lee, C. A. Egan, C. I. Sánchez, and A. Tufail, "A deep learning pipeline for the detection and quantification of drusen and reticular pseudodrusen on optical coherence tomography," in *Association for Research in Vision and Ophthalmology*, vol. 63, The Association for Research in Vision and Ophthalmology, 2022, pp. 3856–3856. [Online]. Available: https://iovs.arvojournals.org/article.aspx?articleid=2781366.

[13] de Vente, C., K. Vermeer, N. Jaccard, H. G. Lemij, and C. I. Sánchez, in *Imaging and Morphometry Association for Glaucoma in Europe*, 2022.

[14] Vente, C. de, K. A. Vermeer, N. Jaccard, H. Wang, H. Sun, F. Khader, D. Truhn, T. Aimyshev, Y. Zhanibekuly, T.-D. Le, A. Galdran, M. Á. González Ballester, G. Carneiro, D. R. G, H. P. S, D. Puthussery, H. Liu, Z. Yang, S. Kondo, S. Kasai, E. Wang, A. Durvasula, J. Heras, M. Á. Zapata, T. Araújo, G. Aresta, H. Bogunović, M. Arikan, Y. C. Lee, H. B. Cho, Y. H. Choi, A. Qayyum, I. Razzak, B. van Ginneken, H. G. Lemij, and C. I. Sánchez, "Airogs: Artificial intelligence for robust glaucoma screening challenge," *IEEE transactions on medical imaging*, vol. 43, no. 1, pp. 542–557, 2023. DOI: 10.1109/TMI.2023.3313786.

[15] Vente, C. de, B. van Ginneken, C. B. Hoyng, C. C. Klaver, and C. I. Sánchez, "Uncertainty-aware multiple-instance learning for reliable classification: Application to optical coherence tomography," *arXiv:2302.03116*, 2023. DOI: 10.48550/arXiv.2302.03116.

[16] Lemij, H. G., C. de Vente, C. I. Sánchez, and K. A. Vermeer, "Characteristics of a large, labeled dataset for the training of artificial intelligence for glaucoma screening with fundus photographs," *Ophthalmology Science*, p. 100 300, 2023. DOI: 10.1016/j.xops.2023.100300.

[17] Vente, C. de, A. Tufail, S. Schmitz-Valckenberg, M. Saßmannshausen, C. Hoyng, and C. I. Sánchez on behalf of the MACUSTAR consortium, "Oct super-resolution for data standardization using ai: A macustar report," in *Association for Research in Vision and Ophthalmology*, vol. 64, The Association for Research in Vision and Ophthalmology, 2023, pp. 313–313. [Online]. Available: https://iovs.arvojournals.org/article.aspx?articleid=2789903.